IN THE SPECIFICATION

On page 3, please amend paragraph [0005] as shown below.

[0005] **Figure 1B** shows an example of the various views which may be provided at each selected latitude. ~~Table 35~~ Figure 1B includes rows 21 through 33, each of which specify ~~at least one longitudinal 0 (along the equator)~~ at least four longitudinal views ~~are shown~~; in ~~this~~the ~~case~~ of latitude zero (along the equator), the views are from points 16, 17, 18, and 19 of **Figure 1A**. It will be appreciated that additional views may be obtained and stored to provide greater resolution along each latitude. For example, views at every 5° or 10° along each latitude provides great resolution of the object and also makes any "movie" seem more realistic. It will also be appreciated that additional views along additional latitudes may be stored in order to provide greater resolution in the north and south directions.

On page 5, please amend paragraph [0009] as shown below.

[0009] There are at least two ways for compressing object movies, compressing every frame individually and compressing based on frame differencing. Compressing every frame individually is the same as compressing still images. For instance, JPEG compression method is one way of compressing a still image and because of that, much more space is required. Compressing based on frame differencing is accomplished by first compressing a key frame using still image compression; obtaining a delta frame, which is the difference between the current frame and the previous frame; and optionally, compressing the delta frame. Such compression continues for several subsequent frames wherein each of the subsequent frames is compared to the previous frame and a delta frame is obtained. This is typically referred to as a linear compression model.

On page 6, please amend paragraph [0011] as shown below.

[0011] To compress a video sequence, for instance, with a video sequence that starts with frame 1 and ends with frame 25, the video sequence can be arranged as shown in **Figure 1C**. There are five rows in this arrangement, row 102-a, 102-b, 102-c, 102-d, and 102-e. Using frame differencing compression, a compressor usually starts from a key frame, in this example, frame 1 in row 102-a, and performs a frame differencing compression. The compressor first compresses frame 1, then, based on the difference between the current frame, frame 2, and the previous frame, frame 1, a delta frame is compressed. This event is repeated until all of the frames in row 102-a are compressed. The compressor will then continue to compress row 102-b, 102-c, 102-d and then 102-e in that order in the same manner as was done for row 102-a. (See arrows A). The number of key frames in a video sequence may be chosen by the compressor, for instance, when there is a big enough difference between two frames, the compressor will assign a key frame. Alternatively, the key frame can be defined, for instance, with a command that assigns a key frame every five or ten frames in the sequence. One advantage for this compression is that the delta frame is usually smaller in size ~~comparing~~ compared to the key frame, given there is much similarity between video frames.

On page 7, please amend paragraph [0013] as shown below.

[0013] Object movies may comprise several views hence, numerous frames. For instance, an object movie typically ~~have~~ has hundreds of frames and even more depending on horizontal resolution (e.g., thirty pictures for each row horizontally and with eighteen rows in total, the object movie has a total of five-hundred-forty frames). The ability to enable random accessing during a user interactive experience is particularly in demand with

object movies. For example, the user may wish to select views of the top the sides of the object 101 above and skip some other views. The user may also wish to designate the sequence of playback which means that the user must be allowed to access any frame in any random order. However, random accessing of frames in the current object movies compressed under the current compression method is extremely slow, lengthy, complex, tedious, and troublesome.

On page 17, please amend paragraphs [0057] and [0058] as shown below.

[0057] **Figure 3A** illustrates an example of how an object movie can be created. An object can be captured or created using the conventional method discussed above. Typically, the object movie is thought of as a three-dimensional object movie because one can see all of the views around the object giving it a three-dimensional appearance. More particularly, one way to think about object movies is as a set of individual views taken from the surface of an invisible sphere 360 which surrounds the object. It is useful to imagine a consistent coordinate system of points evenly spaced apart around the surface of the sphere as illustrated in **Figures 1** and ~~3~~**3A**.

[0058] In one embodiment of the present invention, any type of camera 352 can be used to capture the views for the object~~, here~~. In **Figure 3A**, the object is a cup 350. In one embodiment, at each junction of coordinates on the surface of the sphere, an image of the object is captured. The vertical position, or tilt, looking directly down on the cup 350 would have a 90 degrees vertical angle, while the vertical position looking directly up at the object from below would be a –90 degrees vertical angle. The mid-point vertically (i.e., the equator) would be 0 degrees. Images of the cup 350 along the vertical position can be captured by tilting the camera 352 to different angles starting from a particular point along the vertical position. Similar to each of the vertical angle positions (tilts) from 90 degrees

to –90 degrees, a similar sequence of horizontal positions (pans) which would range from 0 degrees to 360 degrees around the sphere can be used to captures images of the cup 350.

On page 19, please amend paragraphs [0062] as shown below.

[0062] Next, a key frame is selected. For such a small size object movie, in this example, only one key frame was selected. In one embodiment, the key frame is the frame most representative of the overall image of the object. Alternatively, the key frame can be any frame that is in the center of the ~~block~~ layout. Further yet, the key frame can be a frame that shares the most similarities with other frames in the same ~~block~~layout. In a preferred embodiment, the key frame selected is a center frame, frame f-13. The remaining frames of the ~~block~~ layout that are not key frames are referred to as non-key frames.

On page 20, please amend paragraphs [0064] and [0065] as shown below.

[0064] For a larger size object movie, the preferred layout should be divided into a plurality of blocks (see below). In this example, the compression paths can be established using the following rules. (1) Always start compressing with the key frame (e.g., f-13). (2) Always sweep away from the key frame. (3) Sweep horizontally or vertically from the key frame until reaching the boundaries 411-414 of the object movie to cover all of the frames possible in the horizontal path 415 and the vertical path 416. (4) From the horizontal path 415 and the vertical path 416 of each frame, sweep diagonally (e.g., diagonal paths 417-428) until reaching the boundaries to cover all of the frames not reached by the horizontal path 415 and vertical path 416. And, (5) always sweep such that the compression paths reach every one of the ~~frame~~ frames in the object movie. The rules

above result in multi-directional compression paths. Because of the multi-directional sweeping in the compression method, the random access to any of the frames in the movie object is easy, quick and convenient.

[0065] The discussion below demonstrates some compression paths for the object movie discussed in **Figure 4A**. Compression paths for the row 401 are: compress frame f-13, the delta frame between f-13 and f-7, and the delta frame between f-7 and f-1 to get frame f-1; compress frame f-13, the delta frame between f-13 and f-8, and the delta frame between f-8 and f-~~1~~2 to get frame f-2; compress frame f-13, the delta frame between f-13 and f-8, and the delta frame between f-8 and f-3 to get frame f-3; compress frame f-13, the delta frame between f-13 and f-8, and the delta frame between f-8 and f-4 to get frame f-4; lastly, compress frame f-13, the delta frame between f-13 and f-9, and the delta frame between f-9 and f-5 to get frame f-5.

On page 22, please amend paragraphs [0070] as shown below.

[0070] Storing all of the compression paths for rows 401-405 may result in a large final file, especially when the object movie comprises a few hundreds frames. In one embodiment, to minimize the amount of data to be stored and the amount of repeated compressions for the redundant frames, the compressor of the present invention compresses each of the key ~~frame~~ frames and compresses the redundant delta frames only once. As shown in **Figure 4B**, frame f-13 would not be compressed multiple times according to the scheme above but instead, frame f-13 would be compressed only one. Once particular key frames or delta frames have been compressed, the compressor would memorize that those frames have been compressed. Then, each time one of those frames (e.g., f-13) is needed in the subsequent compression paths, the compressor would have memorized that frame f-13 has already been compressed and skip the compression on frame f-13. The same rule would apply to a redundant non-key frame. A redundant non-

key frame is a key frame or a non-key frame that is needed in more than one compression paths. In this example, frame f-8 is a redundant frame because frame f-8 is needed in more than one compression paths (e.g., the compression path for frame f-2, f-3, and f-4).

On page 23, please amend paragraphs [0072] as shown below.

[0072] A reference table (not shown) or reference links 451-465 (as shown in **Figure 4B**) are generated to refer each of the frames and its compression (or decompression) sequence in the video track 450 to the data source track 470. In one example, the links are incorporated into an edit list of a QuickTime ™ Object Movie. (QuickTime is a registered trademark of Apple Incorporation). The edit list is part of the QuickTime object movie file format. This list is a mechanism for the video track 450 to reference the compressed data from the data source track. It is a table that records the linking between the video track 450 and the data track 470. The video track 450 thus, only indicates the compression and the decompression paths for each of the frames in the object movie. The video track 450 only contains the order or the sequence to compress and decompress each of the ~~frame~~ frames but not the actual compressed data themselves. The data source track 470 comprises all of the actual compressed data. The links 451-465 can be used to link the compression or decompression sequence to the compressed data in the data source track 470 as many times as necessary. To get the compressed data for any one frame, the links 451-465, for example, would link the compression or decompression sequence in the video track 450 to the actual compressed data. This way, the compressed data can be accessed easily and randomly on a per need basis.

On page 25, please amend paragraphs [0077] as shown below.

[0077] It will be appreciated that in another implementation of the embodiment discussed above, the maximum number of frames between any one non-key frame and key frame is three. This is for optimization ~~reason~~reasons, theoretically, there is no limit for the maximum number. Therefore, the number of frames between any one non-key frame and key frame can be set at a predetermined number of frames depending on the particular characteristic of the object movie.